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10/735,230	12/12/2003	Xianglin Wang	SAM2.PAU.34	1845

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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/735,230	WANG ET AL.	
	Examiner	Art Unit	
	Tsung-Yin Tsai	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,5,7,9-11,13-28,37,49-51,53-56,60 and 61* is/are pending in the application.

4a) Of the above claim(s) *2,3,6,8,12,29-36,38-48,52 and 57-59* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,5,7,9-11,13-28,37,49-51,53-56,60 and 61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAIL ACTION

Acknowledge of amendment received on 12/28/2007 and made of record.

Acknowledge of amendment to claim 1.

Response to Arguments

Applicant's argument – Page 13 regarding 112 rejection.

Examiner's response – Claim 26 stated "selecting on of 2N+1 different edge directions" where the Examiner read this as where 2N+1 is seen as an edge direction and not a neural network. Further more "2N+1" is not seen in any of the figures if it does represent a neural network.

The Examiner understands that the term N stands for variable for the but if 2N+1 does not fit in the linear regression of increasing neural network as shown in figure 2. And having claim 26 state "selecting on of 2N+1 different edge directions" only read it as a particular edge direction.

Applicant's argument – Page 13-17 regarding 102 and 103 rejection regarding where Matsuoka does not teach selecting of neural network.

Examiner's response – Examiner agrees with applicant that Matsuoka does not teach regarding of selecting of neural network. In respond, Examiner submits a Second Action Non-Final that will address this and other limiations.

Claim Rejections - 35 USC 112

1. . The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claim 26 is rejected due to the inconsistence and unclear of how it is refer to and use.

Regarding to term "**2N+1**", it does not correspond to any of the figures. In this limitation it is noted that the applicant is talking about **different edge direction**, but figure 2 disclose that the term "N" is reserve for neural networks.

The term "N" is confusing to the examiner as the claim here interchanges (as edge directions and neural network) and are not consistent to what is in Figure 2. Clarify the term and limitation of this claim.

Claim Rejections – 35 USC 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 4-5, 7, 9-11, 13, 15, 16, 18, 19, 24-25 and 37 are rejected under 35 U.S.C. 102(b) as being unpatentable over Matsuoka (US Patent Number 6,272,261 B1) in view of Kuperstein et al (US Patent Number 6,128,398).

(1) Regarding claim 1 and 4:

Matsuoka teaches regarding the following subject matter:

the method (figure 1 disclose method carry out)comprising of a dedicated neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) for each of a plurality of different edge directions (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) to provide an interpolated value (abstract discloses where the interpolation is carry out on the data) of the image (title, abstract, figure 1).

determining an edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) of an image at a location within the image (figure 2 disclose part of the image with edge information) where interpolation (abstract discloses where the interpolation is carry out on the data) is desired;

selecting a neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) based upon the determined edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection); and

interpolating a value (abstract discloses where the interpolation is carry out on the data) of the image (title, abstract, figure 1) at the location using the selected neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand).

Matsuoka does not teach regarding selecting of neural network.

However, Kuperstein et al teaches regarding selecting of neural network (figure 4 step 80 discloses selecting of neural network, column 5 55-68 to column 6 lines 1-55 discloses edge determination/detection to determine a outline of the object of interest such as hair, face or clothing as stated in column 6 lines 50-60, column 8 lines 5-30 discloses where finding of the edge of the mean gaze is determine and these coordinate will determine which neural network will be selected base on that information) base on edge information (column 5 55-68 to column 6 lines 1-55 discloses edge determination/detection to determine a outline of the object of interest such as hair, face or clothing as stated in column 6 lines 50-60).

It would have been obvious to one skill in the art at the time of the invention to employ Kuperstein et al teachings to Matsuoka regarding selecting a neural network to further process the image data base on edge information.

The motivation to combine such that this system will not require storage of any information about particular face and thus greatly minimizes the storage requirement of the system (column 2 lines 50-60). Such neural network system will also have a high degree of accuracy while tolerating a wide range of variations in the image (column 3 lines 35-45).

(2) Regarding claim 5:

Matsuoka further teaches:

wherein determining an edge direction (figure 2 disclose part of the image with edge information, column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) comprises determining vector (figure 3 disclose arrows for determining of vectors) correlations between pixels (figure 8 discloses regarding between pixels) on adjacent scan lines (viewing figure 2 disclose how the adjacent lines are how it is determine edges of the portion of the image of interest) such that the location where interpolation (abstract discloses where the interpolation is carry out on the data) is desired is between the adjacent scan lines (figure 8 disclose interpolated pixel between the original pixel).

(3) Regarding claim 7:

Matsuoka further teaches:

determining which of a plurality of different neural networks (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) is most closely associated (column 6 lines 40-50 discloses how a particular network is selected for the task on hand) with the determined edge direction (figure 2 disclose part of the image with edge information, column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection).

(4) Regarding claim 9 and 10:

Matsuoka further teaches:

mirroring a data (figure 7 disclose where data from "f" inputs are sent out to each neuron, data set in each neuron sent is seen as mirror) set to facilitate use of a common neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) for symmetric edge directions (figure 2C disclose a vertical edge direction image, vertical is symmetric).

vertically mirroring a data (figure 7 disclose where data from "f" inputs are sent out to each neuron, data set in each neuron sent is seen as mirror) set to facilitate use of a common neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) for symmetric edges (figure 2C disclose a vertical edge direction image, vertical is symmetric).

(5) Regarding claim 11:

Matsuoka further teaches:

selecting a substantially linear neural network (figure 7 disclose a bi-linear neural network) with one neuron (figure 7 discloses a one neuron net work between the "f" inputs and the output).

(6) Regarding claim 13:

Matsuoka further teaches:

repeating the determining, selecting and interpolating (figure 1 disclose the repeating method) steps so as to provide a new scan line between two old

scan lines (figure 8 and 9 disclose the new interpolation image from the original/old scan lines).

(7) Regarding claim 15:

Matsuoka further teaches:

wherein the location (figure 2 discloses the area that and edge is detected) where interpolation (abstract discloses where the interpolation is carry out on the data) is desired is defined by a pixel in the image (figure 2 discloses where the pixel value of the image is and edge for the desire image processing).

(8) Regarding claim 16:

Matsuoka further teaches:

wherein the interpolated value (abstract discloses where the interpolation is carry out on the data) is intensity (figure 2 discloses intensity is determine by the large different in the pixel values).

(9) Regarding claim 18:

Matsuoka further teaches:

wherein the edge direction is determined (figure 2 disclose part of the image with edge information, column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) by correlating at a vector (figure 2 discloses where the vector is determine by the change in intensity from one line to the next) from one scan line proximate the location (figure 2) where interpolation (abstract discloses where the interpolation is carry out on the data) is desired with a vector from another scan line proximate

(figure 2 disclose how and edge vector is determine, by scanning one line next to another) the location where interpolation (abstract discloses where the interpolation is carry out on the data) is desired .

(11) Regarding claim 19:

Matsuoka further teaches:

wherein the edge direction (figure 2 disclose the detection of edge direction by the change in pixel values) is determined by correlating at a vector from a scan line immediately above (figure 2 disclose edge detection by detecting an image block and evaluating the values from the lines above and below) the location where interpolation (abstract discloses where the interpolation is carry out on the data) is desired with a vector from another scan line immediately below (figure 2 disclose edge detection by detecting an image block and evaluating the values from the lines above and below) the location where interpolation (abstract discloses where the interpolation is carry out on the data) is desired.

(12) Regarding claim 24:

Matsuoka further teaches:

wherein inputs (figure 1 disclose the input of the original image) to the selected neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) comprise values of neighboring portions (figure 2 discloses where the edge detection from a section of image of neighboring values, figure 6 discloses the

different shading of colors from neighboring values) of the image (title, abstract, figure 1) with respect to the location where interpolation (abstract discloses where the interpolation is carry out on the data) is desired.

(13) Regarding claim 25:

Matsuoka further teaches:

wherein inputs to the selected neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) comprise values of neighboring pixels (figure 2 discloses where the edge detection from a section of image of neighboring values, figure 6 discloses the different shading of colors from neighboring values) with respect to a pixel (figure 2 discloses where the edge detection from a section of image of neighboring values, figure 6 discloses the different shading of colors from neighboring values) at the location where interpolation (abstract discloses where the interpolation is carry out on the data) is desired.

(14) Regarding claim 37:

Matsuoka further teaches:

the system (title disclose device which is seen as the system) comprising a dedicated neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) configured to provide an interpolated value (abstract discloses where the interpolation is carry out on the data) for each of a plurality of different edge

directions (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) in the image (title, abstract, figure 1).

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuoka (US Patent Number 6,272,261 B1) and Kuperstein et al (US Patent Number 6,128,398) in view of Garard de Haan (Deinterlacing – an Overview, IDS).

(1) Regarding claim 14:

Matsuoka teaches regarding the following subject matter:

repeating the determining, selecting and interpolating (figure 1 disclose the repeating method) steps so as to provide a new scan line between two old scan lines (figure 8 and 9 disclose the new interpolation image from the original/old scan lines)

Matsuoka does not teach regarding deinterlacing.

However, Garard de Haan teaches regarding deinterlacing (title, page 1839).

It would have been obvious to one skill in the art at the time of the invention to employ Garard de Haan teachings to Matsuoka regarding deinterlacing of image processing. The use of deinterlacing process will aim at removal of undesirable subsampling artifacts.

The motivation to combine a neural network to deinterlacing would further unburden all the image processing from one processor and distribute the image

processing workload over varies processors that are specialize in the tasks. In this way this can improve the efficiency of even highly complex of processing images (page 1839 right paragraph), as well as faster processing.

6. Claim 17 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuoka (US Patent Number 6,272,261 B1) and Kuperstein et al (US Patent Number 6,128,398) in view of Rising III (US 2001/0031100 A1).

(1) Regarding claim 17:

Matsuoka teaches regarding the subject matter:

wherein the interpolated valued (abstract discloses where the interpolation is carry out on the data).

Matsuoka does not teach regarding to color.

However, Rising III teaches regarding to color (page 6 paragraph 0089).

It would have been obvious to one skill in the art at the time of the invention to employ Rising III teachings to Matsuoka regarding color. Color images are common accept form of image format, thus, it would be logical for the process to includes those processing for color images as well.

The motivation to combine regarding processing of color images due to that color images are common accept form of image format, thus, it would be logical for the process to includes those processing for color images as well.

(2) Regarding claims 20-23:

Matsuoka teaches regarding the subject matter:

wherein the location where interpolation (abstract discloses where the interpolation is carry out on the data) is desired is between two scan lines of a video image;

wherein the location where interpolation (abstract discloses where the interpolation is carry out on the data) is desired is between two scan lines of a field (figure 8 discloses where the interpolation is between) of an interlaced video image;

wherein the location where interpolation (abstract discloses where the interpolation is carry out on the data) is desired is approximately centered between two scan lines (figure 8 discloses where the interpolation is between) of an interlaced video image;

wherein the location where interpolation (abstract discloses where the interpolation is carry out on the data) is desired is approximately centered between two scan lines (figure 8 discloses where the interpolation is between) of an interlaced video image and further comprising enhancing the video image with the interpolated value (abstract discloses where the interpolation is carry out on the data) so as to facilitate formation of a deinterlaced video image.

Matsuoka does not teach regarding video images.

However, Rising III teaches regarding video images (title).

It would have been obvious to one skill in the art at the time of the invention to employ Rising III teachings to Matsuoka regarding video images.

Video images are common accept form of image format, thus, it would be logical for the process to includes those processing for color images as well.

The motivation to combine regarding processing of video images due to that video images are common accept form of image format, thus, it would be logical for the process to includes those processing for video images as well.

7. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuoka (US Patent Number 6,272,261 B1) and Kuperstein et al (US Patent Number 6,128,398).

(1) Regarding claims 27-28:

Matsuoka discloses where there are inputs such as the original image data.

Matsuoka does not expressly disclose where the input has to be between 40-80 samples or approximately 60 samples.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to enter whatever amount of samples that would require to achieve the desired analysis of the image data. Applicant does not disclosed that with the given amount of samples of data would provide any sort of advantage to solve the problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the number of sample requirement by Matsuoka because sample input amounts are only input amount are input enough to get achieve the desire require analysis.

Therefore, it would have been obvious to combine to one of ordinary skill in the art to modify Matsuoka to obtain the invention as specified in claims 27 and 28.

8. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuoka (US Patent Number 6,272,261 B1) and Kuperstein et al (US Patent Number 6,128,398) in view of Vachtsevanos et al (US Patent Number 5,815,198).

(1) Regarding claim 49:

Matsuoka teaches regarding the following subject matter:

A method for interpolating an omitted scan line between two neighboring scan lines (figure 8) of an interlaced image, the method comprising detecting an edge direction of the image (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) at a selected point (figure 2, figure 6 and figure 8 disclose the points where there is a edge for processing) on the omitted scan line, selecting a neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) based upon the detected edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection), and using the neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) to provide an

interpolated value (abstract discloses where the interpolation is carry out on the data) for the selected point.

Matsuoka does not teach regarding omitted scan line and interlaced image.

However, Vachtsevanos et al teaches regarding omitted scan line (column 8 lines 15-35) and interlaced image (column 26 lines 35-45).

It would have been obvious to one skill in the art at the time of the invention to employ Vachtsevanos et al teachings to Matsuoka regarding omitted scan line and interlace images.

The motivation to combine regarding omitting scan lines and interlace images process will select the optimum transform image processing method for a given set of defects and stores the corresponding features in a rulebase, for real time inspection of any object in the image (abstract).

9. Claims 50-51, 53-56 and 60-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuoka (US Patent Number 6,272,261 B1) and Kuperstein et al (US Patent Number 6,128,398) in view of Gabriel et al (US Patent Number 4,468,688).

(1) Regarding claims 50, 53-56 and 60-61:

Matsuoka teaches regarding the following subject matter:

determining an edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) of a video image at a location within the video image where interpolation

(abstract discloses where the interpolation is carry out on the data) is desired, the location being intermediate two adjacent scan lines (viewing figure 2 disclose how the adjacent lines are how it is determine edges of the portion of the image of interest, figure 8 disclose interpolated pixel between the original pixel) of a field of the video image;

selecting a neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) based upon the determined edge direction (column 6 lines 40-50 discloses how a particular network is selected for the task on hand); and

interpolating a value (abstract discloses where the interpolation is carry out on the data) of the video image at the location using the selected neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand).

Claim 53:

a plurality of neural networks (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand), each neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) configured to interpolate a value (abstract discloses where the interpolation is carry out on the data) of the video image for a predetermined edge direction (figure 7, column 6 lines 40-50 discloses how a particular network is selected for the task on hand);

an edge direction detector (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) configured to determine an edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) of an image at a location within the video image where interpolation (abstract discloses where the interpolation is carry out on the data) is desired; and

a neural network selector (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) responsive to the edge direction detector (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) and configured to select one of the neural networks (column 6 lines 40-50 discloses how a particular network is selected for the task on hand) based upon the determined edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection).

Claim 54:

a system for deinterlacing a video image, the system for deinterlacing a video image comprising:

a plurality of neural networks (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand), each neural network (figure 7 discloses dedicated neural network) configured to interpolate a value (abstract discloses where the interpolation is

carry out on the data) of the video image for a predetermined edge direction (column 5 lines 60-68 to column 6 lines 1-10);

an edge direction detector (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) configured to determine an edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) of an image at a location within the video image where interpolation (abstract discloses where the interpolation is carry out on the data) is desired; and

a neural network selector (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) responsive to the edge direction detector (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) and configured to select one of the neural networks (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) based upon the determined edge direction (column 6 lines 40-50 discloses how a particular network is selected for the task on hand).

Claim 55:

determining an edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection)

of an image at a location within the image where interpolation (abstract discloses where the interpolation is carry out on the data) is desired;

selecting a neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) based upon the determined edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection); and

interpolating a value (abstract discloses where the interpolation is carry out on the data) of the image at the location using the selected neural network (column 6 lines 40-50 discloses how a particular network is selected for the task on hand).

Claim 56:

determining an edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) of an interlace video image at a location within the image intermediate two adjacent scan lines (viewing figure 2 disclose how the adjacent lines are how it is determine edges of the portion of the image of interest) of a field of the video image;

selecting a neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) based upon the determined edge direction (figure 2 disclose part of the

image with edge information, column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection); and

interpolating a value (abstract discloses where the interpolation is carry out on the data) of the video image at the location using the selected neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand).

Claim 60:

determining an edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) of an image at a location within the image (figure 2 disclose part of the image with edge information) where interpolation (abstract discloses where the interpolation is carry out on the data) is desired;

selecting a neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) based upon the determined edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection); and

interpolating a value (abstract discloses where the interpolation is carry out on the data) of the image (title, abstract, figure 1) at the location using the selected neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand).

Claim 61:

determining an edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection) of an image at a location within the image (figure 2 disclose part of the image with edge information) where interpolation (abstract discloses where the interpolation is carry out on the data) is desired;

selecting a neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand) based upon the determined edge direction (column 6 lines 1-5 discloses the different kind of edge directions that are being consider for the neural network selection); and

interpolating a value (abstract discloses where the interpolation is carry out on the data) of the image (title, abstract, figure 1) at the location using the selected neural network (figure 7 discloses dedicated neural network, column 6 lines 40-50 discloses how a particular network is selected for the task on hand).

Matsuoka does not teach regarding deinterlacing and video images.

However, Gabriel et al teaches regarding deinterlacing and video images (column 31 lines 40-68 and column 32 lines 1-30 discloses regarding further video data processing from the deinterlace filter).

It would have been obvious to one skill in the art at the time of the invention to employ Gabriel et al teachings to Matsuoka regarding deinterlacing and processing of video image. Deinterlacing regarding video image is now implanted due to the different video format that are now presented to the public

do to the change in image/video processors. Video is a widely accepted form of media and processing such media format will be common for visiual means.

The motivation to combine such that this system would provide a practical transforming multi-dimensional visual images has an important demand for such diverse purpose as producing special effects in television programming and distorted curvature images to flat pictorial representation (column 1 lines 45-50).

(2) Regarding claim 51:

Matsuoka further teaches repeating the determining, selecting and interpolating (figure 1 disclose the repeating method) steps so as to provide a new scan line between two old scan lines (figure 8 and 9 disclose the new interpolation image from the original/old scan lines).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tsung-Yin Tsai whose telephone number is (571) 270-1671. The examiner can normally be reached on Monday - Friday 8 am - 5 pm ESP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571)272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tsung-Yin Tsai
January 30, 2008

JINGGE WU
SUPERVISORY PATENT EXAMINER